REMARKS

Reconsideration of the above-identified Application is respectfully requested. Claims 13-18 are in the case. Claims 1-12 and 19 were previously canceled. Claims 13 and 15-17 have been amended. The Specification has been amaended.

Regarding the objection to the disclosure, this objection is respectfully traversed in part, with the Specification having been amended to overcome part of this objection. First, regarding the ground of this objection concerning reference to "non-thermosetting adhesive paste 731" on page 11, the inadvertent error has been corrected such that the reference is now to "thermosetting adhesive paste 731". It is therefore respectfully submitted that this ground of objection has been overcome. Second, Applicants respectfully dispute the allegation that the respective flow/non-flow of adhesive is a matter of quantity of adhesive, as implied in the other ground of this objection. Rather, that the adhesive initially does not flow around the bumps and fill the space between the chip surface and substrate, but later does, is a consequence of the flow properties, i.e., viscosity, of the adhesive in the respective stages of the inventive process. Figure 2, for example, shows the viscosity versus time and temperature for an adhesive that may be used in the inventive process. As shown, and as described in the corresponding text, the adhesive starts out as a paste, which flows very slowly. Thus, when it is deposited, it initially does not flow, and so does not fill the space between the chip surface and substrate. However, later, as radiation causes the adhesive to heat, the viscosity decreases to the liquidous, thereby allowing the adhesive to flow and fill the space between the chip surface and substrate. It is respectfully submitted that this is explained clearly and adequately in the Specification. See, for example, page 9, lines 19-22.

It is therefore respectfully requested that this objection be reconsidered and withdrawn.

Regarding the rejection of Claims 13-18 under 35 U.S.C. § 112, 2nd paragraph, Claims 13 and 15-17 have been amended to overcome the rejection. It is respectfully submitted that the rejection has been overcome, wherefore reconsideration and withdrawal of this rejection are respectfully requested.

Regarding the rejection of Claims 13-18 under 35 U.S.C. § 112, 1st paragraph, this rejection is respectfully traversed. In particular, it is respectfully submitted that one skilled in the art would know that the amount of heat energy required to achieve contact bonding is much less than that required to significantly decrease the viscosity of the adhesive. One skilled in the art would know that the temperature required to bring about the bonding of the very small contacts, while higher than that required to significantly lower the viscosity of the adhesive, is generated for a much shorter amount of time than that required to significantly decrease the viscosity of the adhesive. In other words, not enough heat energy is imparted to the adhesive in the bonding time to liquefy it. Conversely, one skilled in the art would know that if the bonding temperature were applied for a time sufficient to bring about liquefying of the adhesive, the contacts would likely be damaged.

Finally, as pointed out in the Specification at page 14, lines 15-17, "Ramp time, duration, and intensity of the exposure are controlled by computer inputs which are specific to the device properties." One skilled in the art will know the temperature required to liquefy (and subsequently solidify) the adhesive, lower than that required to bring about bonding of the contacts, and the ramp time and duration, based on the specified properties of the particular thermosetting adhesive chosen. Based on the device properties, such as chip area and reflectivity, one skilled in the art will be readily able to construct a suitable radiation delivery arrangement, such as that shown in Figure 6, and to calculate the lamp intensity for such arrangement to bring about the desired liquefying and gelling of the selected adhesive.

It is therefore respectfully submitted that one skilled in the art would know how to bond the contacts in a first step and then subsequently irradiate the chip to bring about the desired liquefying and setting of the adhesive, as described

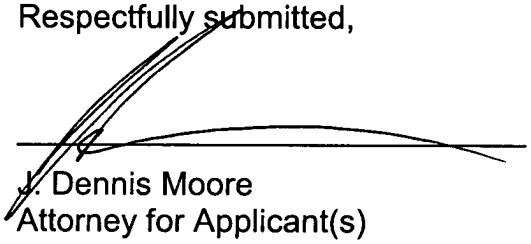
and claimed. It is therefore respectfully requested that this rejection be reconsidered and withdrawn.

It is respectfully submitted that the claims recite the patentably distinguishing features of the invention and that, taken together with the above remarks, the present application is now in proper form for allowance. Reconsideration of the application, as amended, and allowance of the claims are requested at an early date.

While it is believed that the instant amendment places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

To the extent necessary, the Applicants petition for an Extension of Time under 37 C.F.R. §1.136. Please charge any fees in connection with the filing of this paper, including extension of time fees to the Deposit Account No. 20-0668 of Texas Instruments Incorporated.

Respectfully submitted,



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